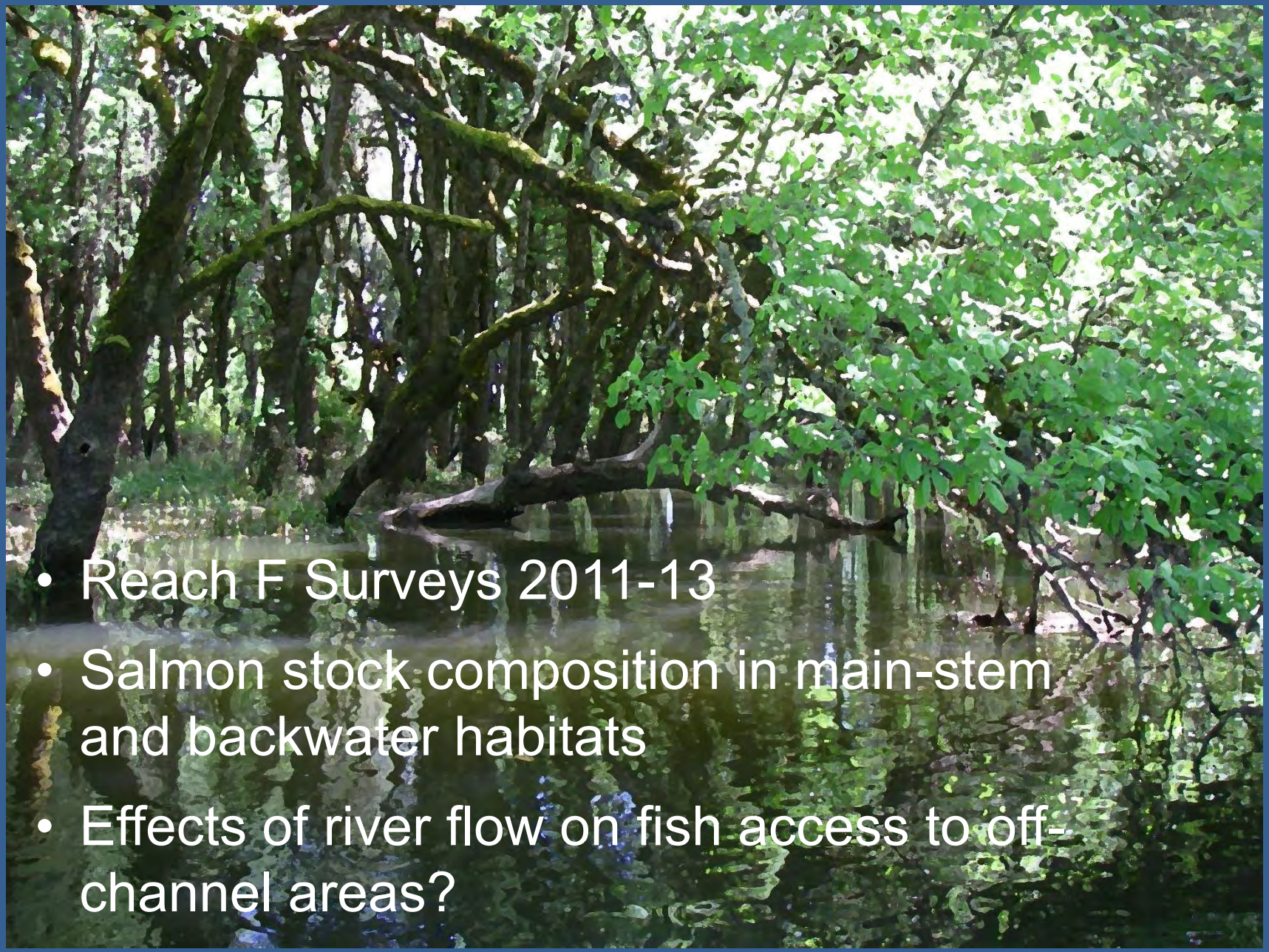
Fish Use in Other Lakes and Habitats: Main Stem and Tidal Floodplain Habitats in the Upper Columbia River Estuary

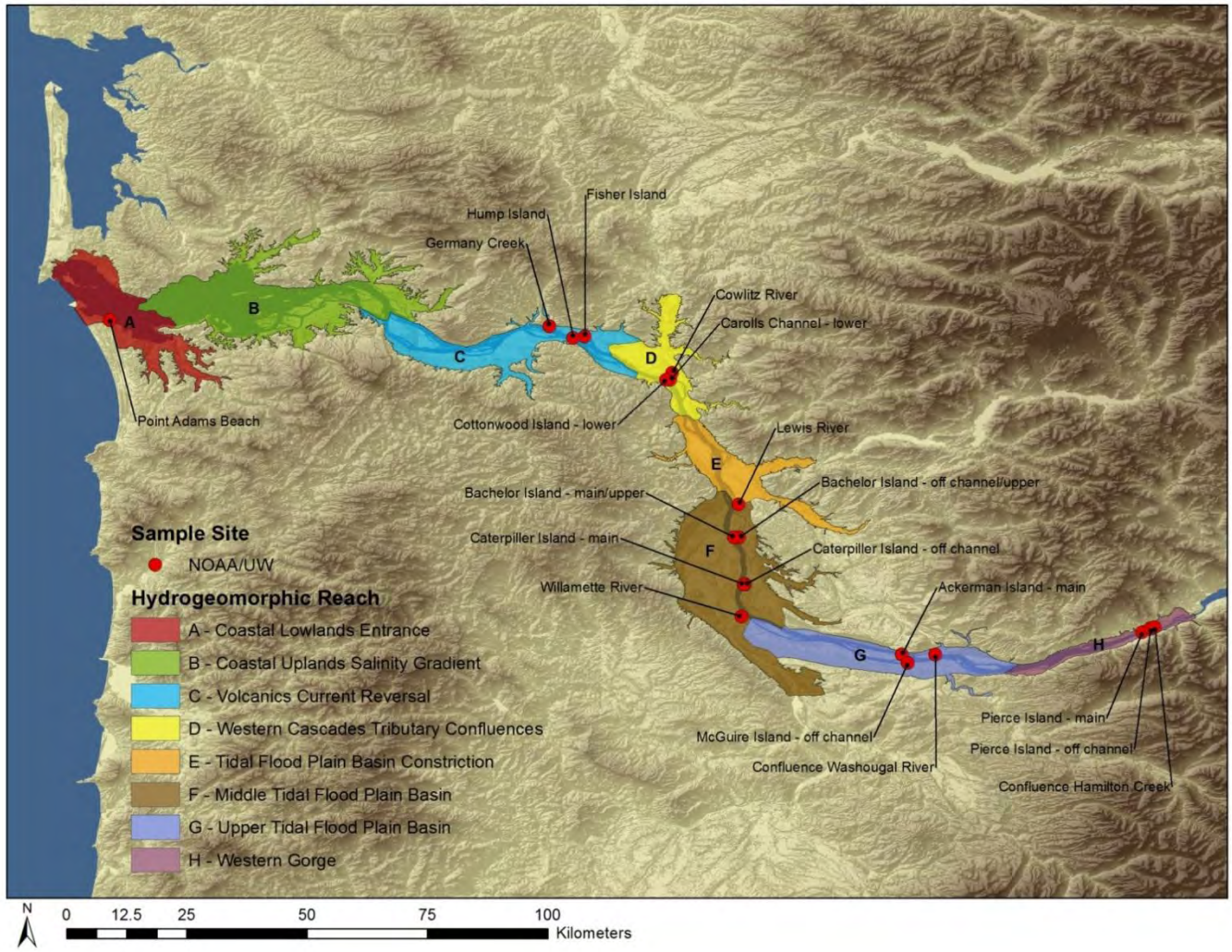
Cunningham Slough Floodplain
July 2011

Outline



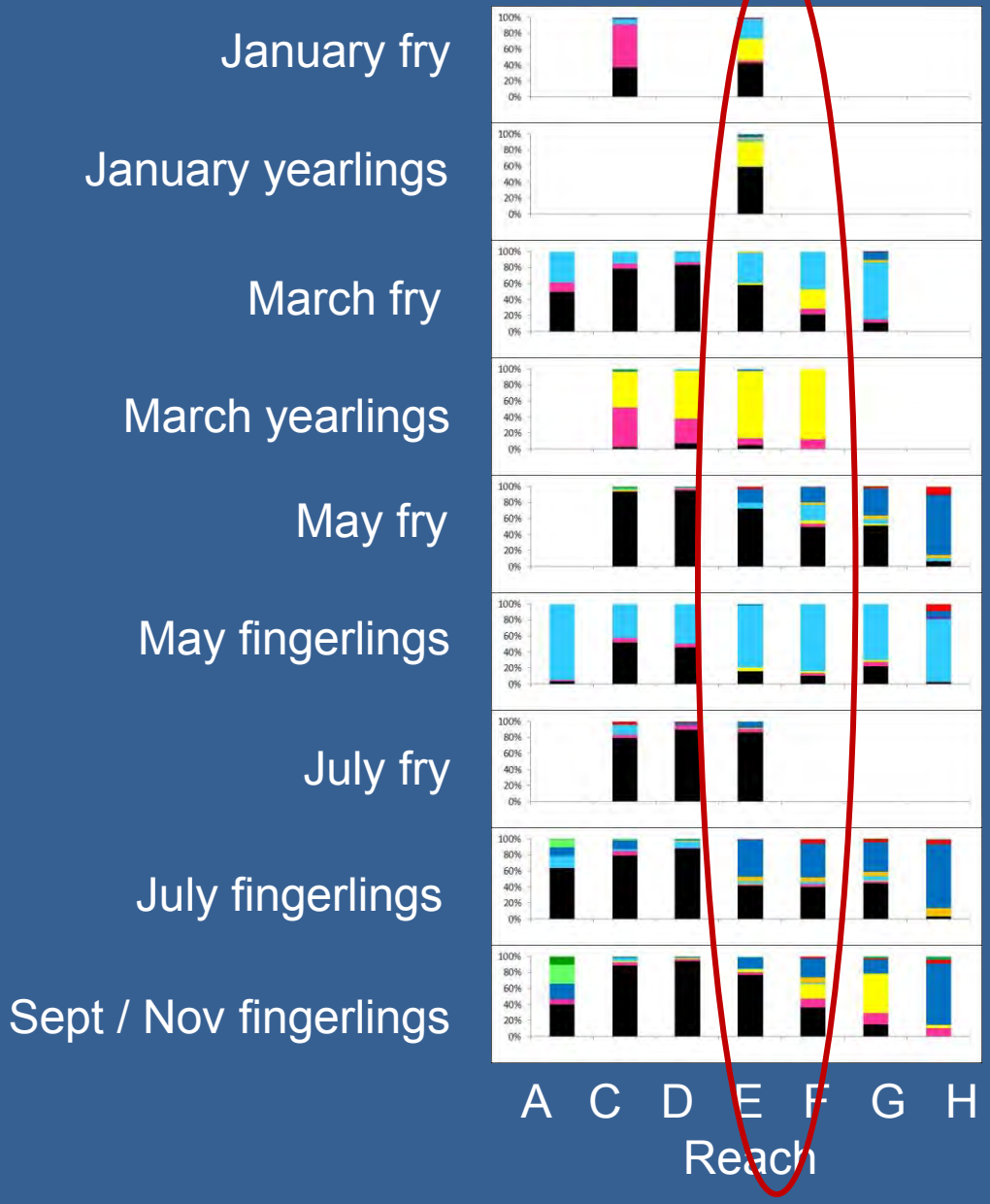
- Reach F Surveys 2011-13
- Salmon stock composition in main-stem and backwater habitats
- Effects of river flow on fish access to off-channel areas?

Genetic Stock Distribution Survey
March 2010 - March 2012



- Bimonthly, up to 30 samples/site
- 3 habitats/reach (C-H):
  --trib. confluence
  --backwater
  --main stem

Chinook Stock Compositions by Month and Life History, 2010-11



Fry ≤ 60mm

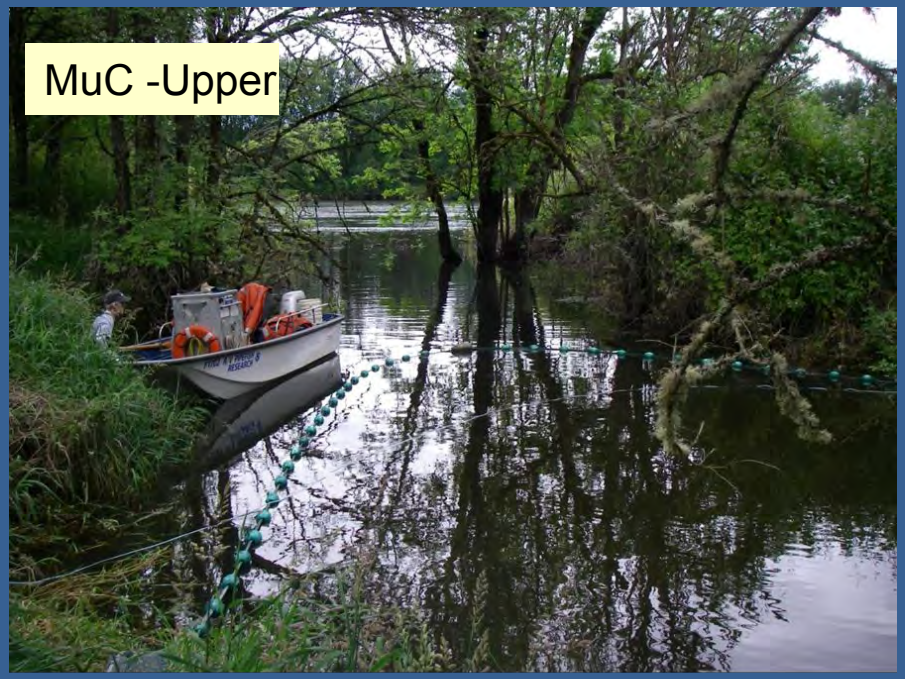
Fingerling > 60mm

Yearling by size and month

- Coastal
- Rogue
- Snake spring/summer
- Snake fall
- Upper CR summer/fall
- Mid & Upper CR spring
- Deschutes fall
- Spring Creek Group fall
- Willamette spring
- West Cascade spring
- West Cascade fall

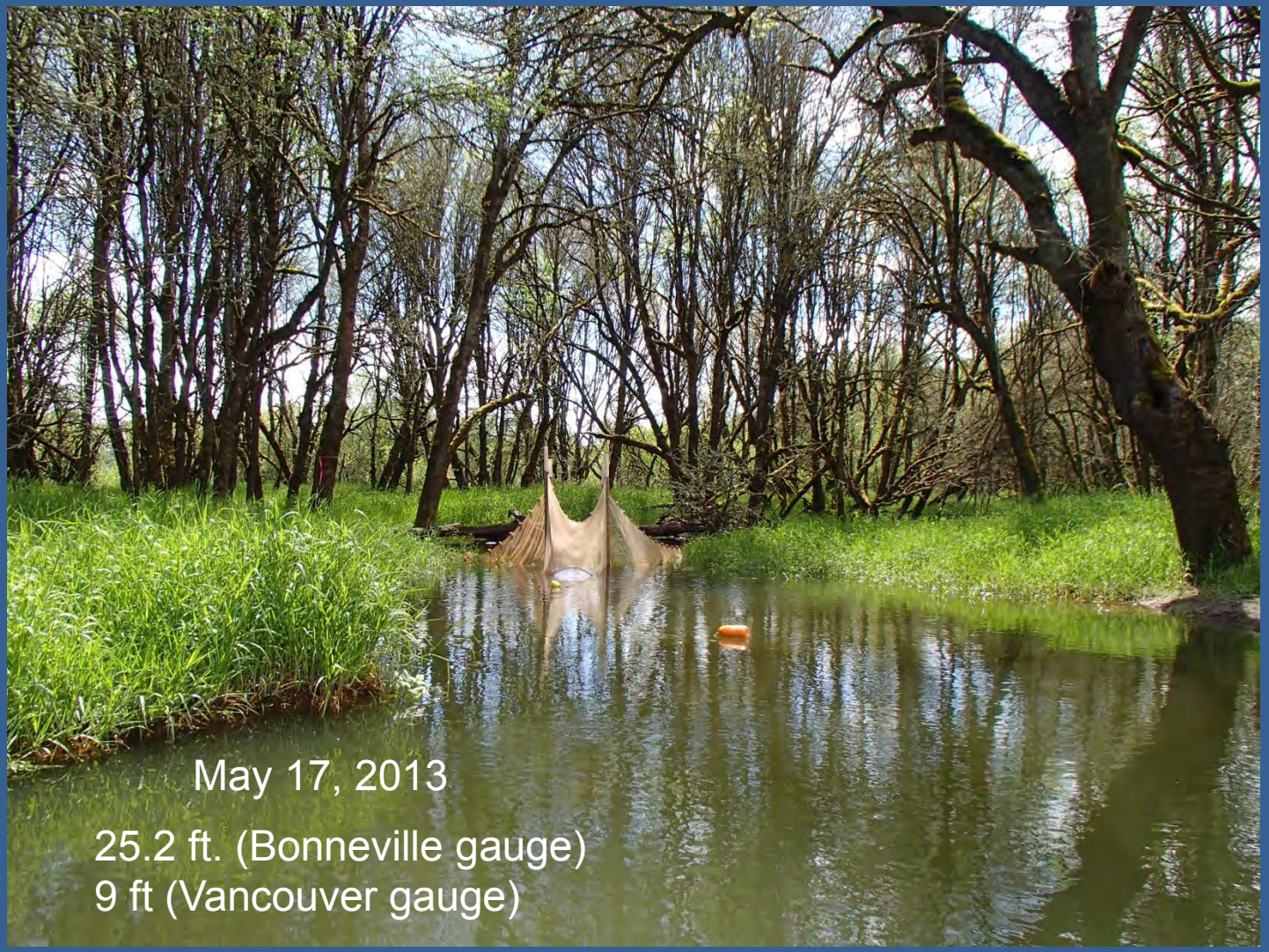
Unpublished data D. Teel

MuC -Upper

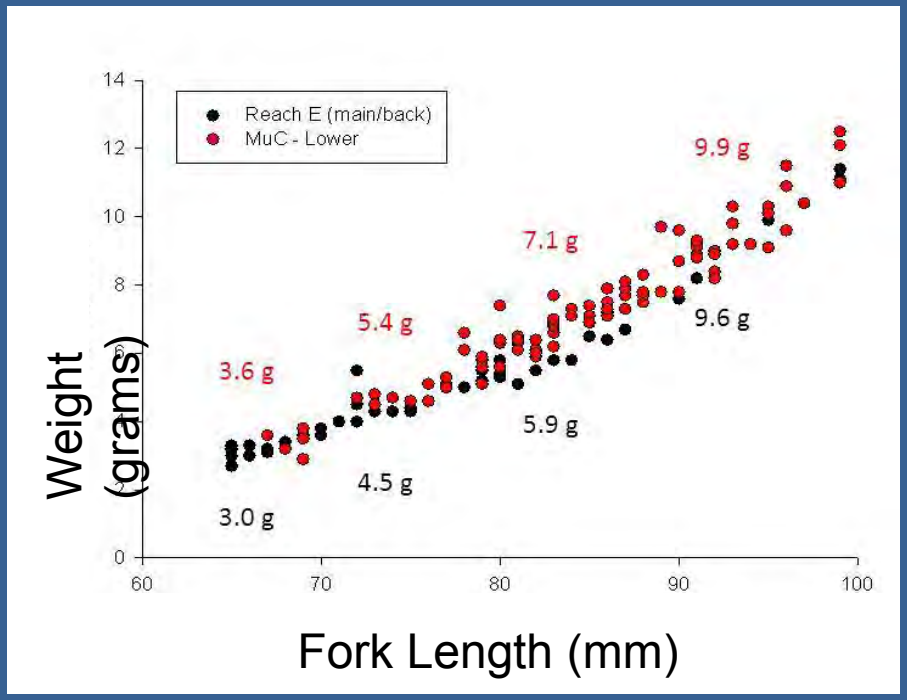


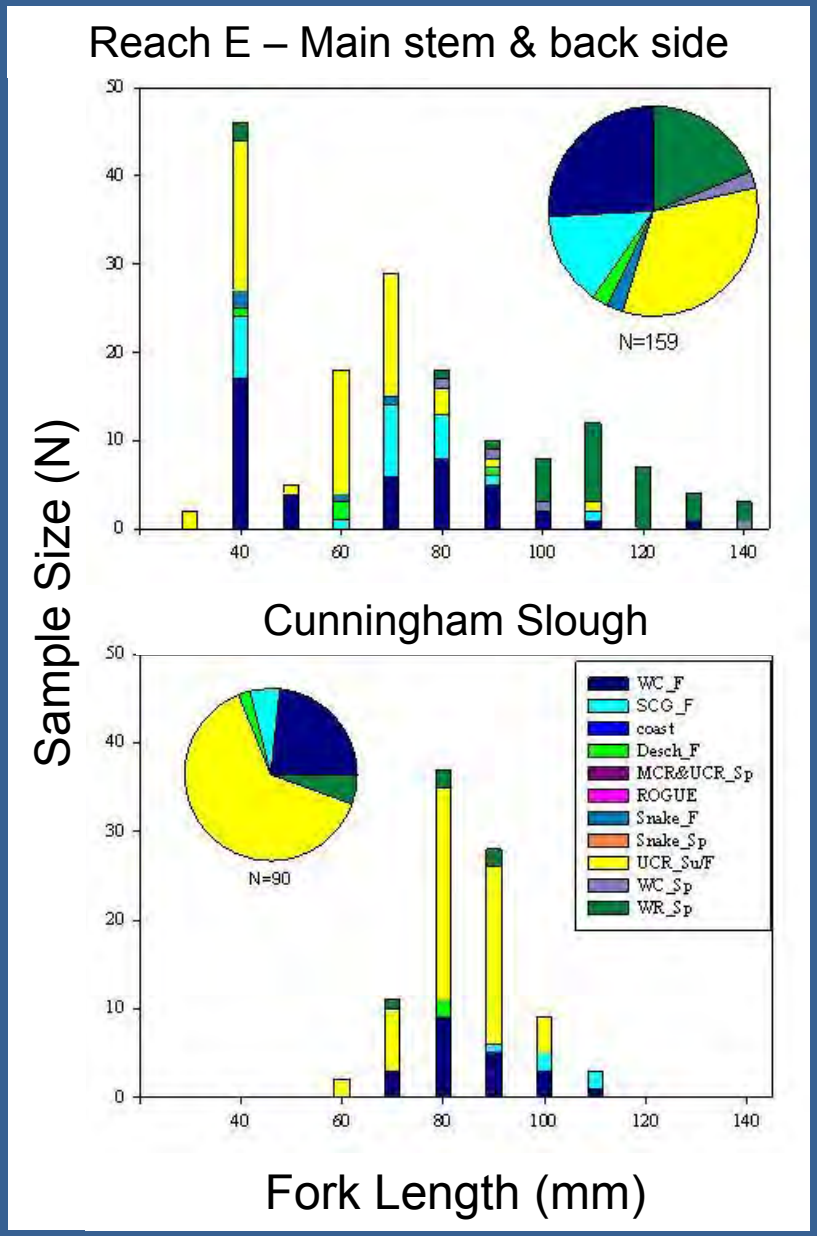
MuC -lower

Modified Trapnet Floodplain Sampling



Chinook Salmon Use of the Tidal Floodplain

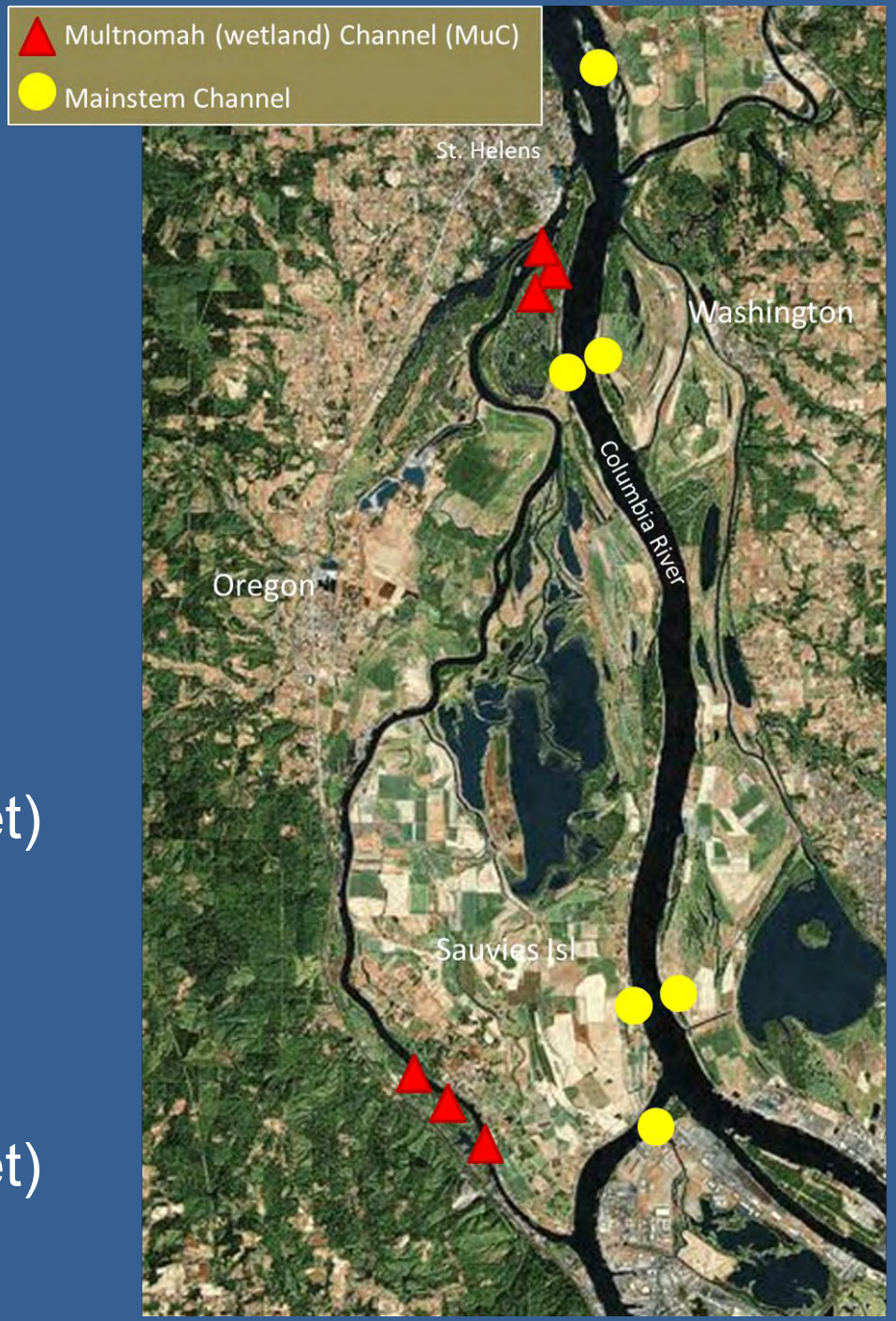


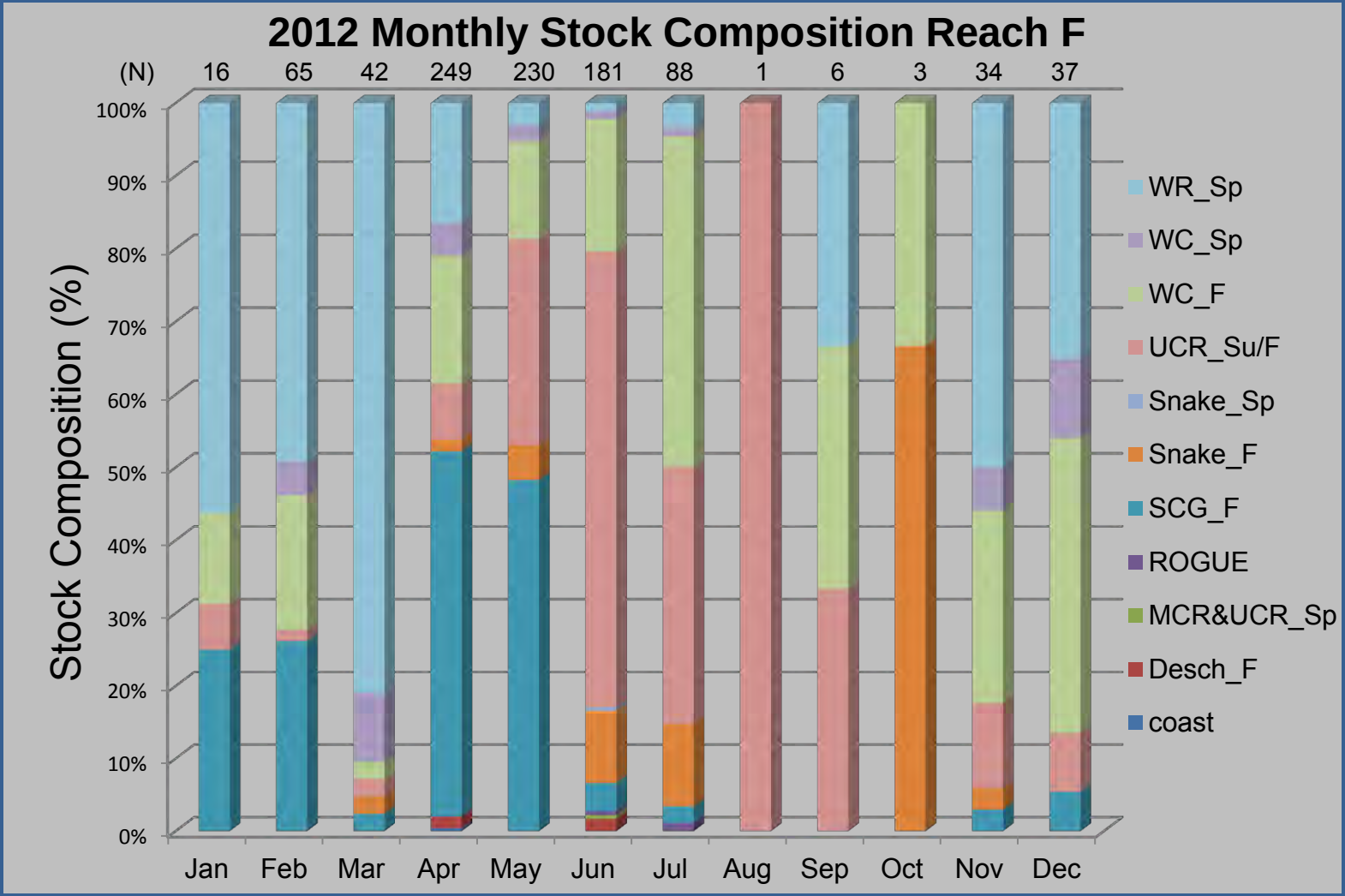


2012 Reach F Sampling Sites

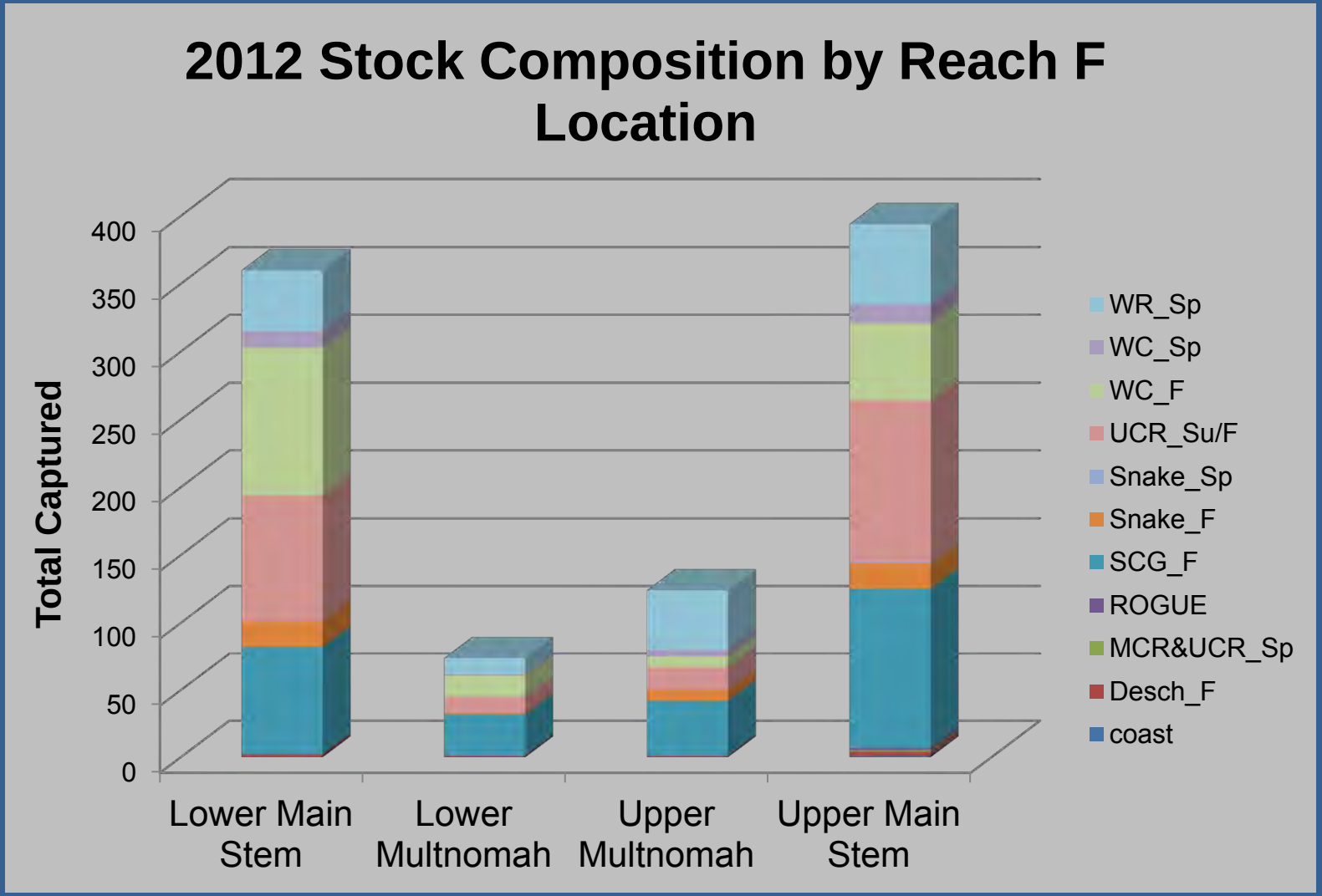
Monthly sampling year round

- Lower Main Stem (beach seine)
- Lower Multnomah (beach seine, trapnet)
- Upper Main Stem (beach seine)
- Upper Multnomah (beach seine, trapnet)





- Strong seasonal signal in stock composition
- Catches low after July



- Stock composition generally similar in main stem and Multnomah Channel backwater sites
- Fish densities seem higher at main stem sites

OSU Electrofishing: Upper Multnomah Channel

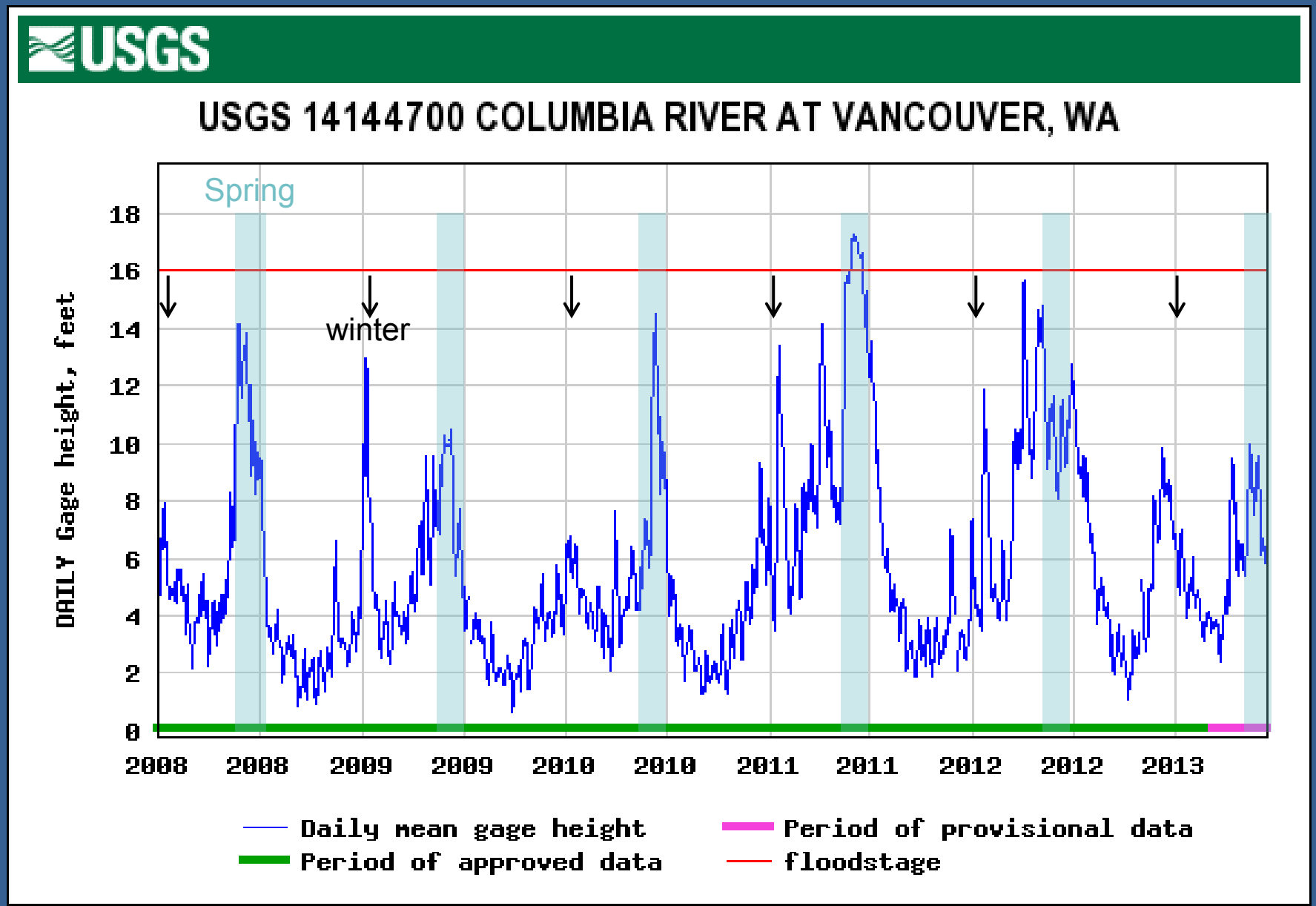
May 16, 2013

2013 Species Composition: Test Electroshocking and Main Stem Beach Seine

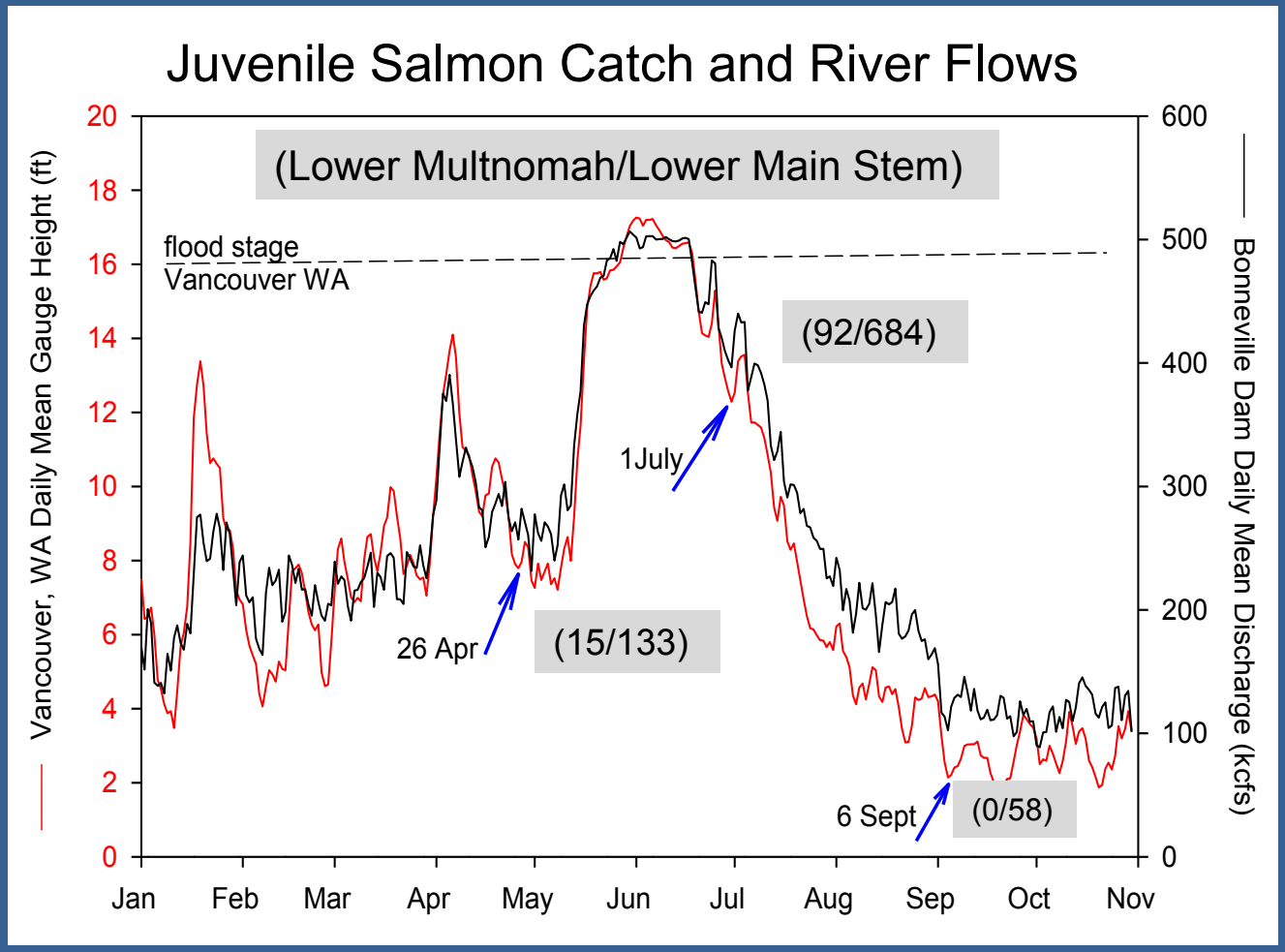
	April			May		
	Mult. Chan. Upper	Mult. Chan. Lower	CR Main Stem Lower	Mult. Chan. Upper	Mult. Chan. Lower	CR Main Stem Lower
Salmon	20	**34***	124	14	**22****	115
Stickleback	74	109	245	14	182	2
Peamouth			1	1	1	
Cyprinidae			13			
N. pickeminnow						3
Banded killifish			2		1	
Common carp	2					
Largescale sucker	18	5		5		1
Yellow perch	5	2		4	24	1
Golden shiner		2		1		
Pumpkinseed	1	1				
Starry flounder	1	11	3			
Prickly sculpin		5		1	5	
Amur goby					2	
Smallmouth bass		2		1		
Goldfish				1		
Black crappie		1		1		
Oriental weather fish		1				

* All but one salmon caught outside Cunningham Sl.
** 15 of these hatchery coho

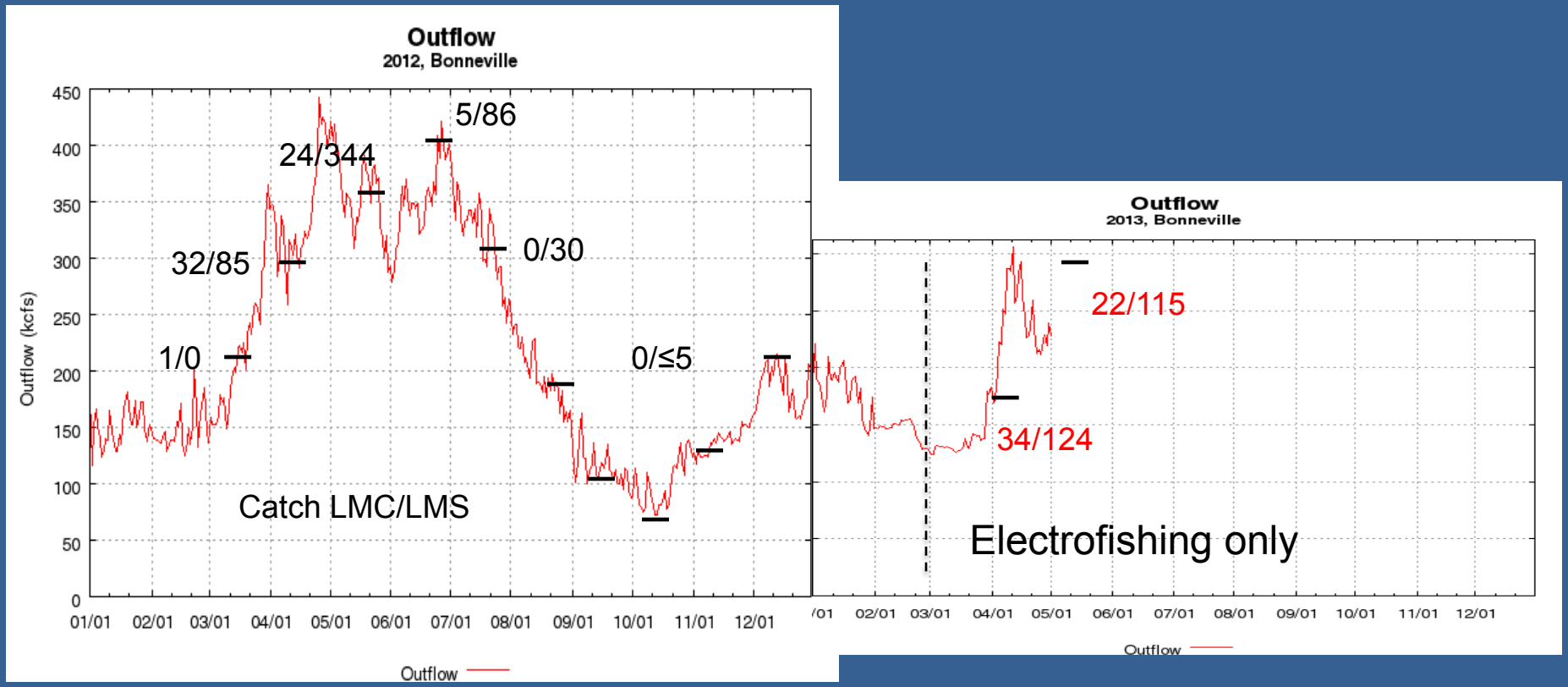
Peak flows that inundate the tidal floodplain occur primarily in the spring, occasionally in winter



Reconnaissance Surveys Multnomah Channel Area 2011



Habitat vs. System Controls: Are fish distributed to off-channel habitats by high flows?



- Salmon catches in back-channel areas generally less than along main stem sites
- Back water catches increase during some high flow events (but not all?)


16 March, 1050
19 ft 219,800 cfs


April 20, 1050
24 ft 290,700 cfs


25 May, 1110
25.6 ft 366,300 cfs


24 July, 1010
23 ft 309,400 cfs


21 August 1015
14.7 ft 182,600 cfs


13 September, 1410
9.7 ft 108,400 cfs


17 October, 1200
9.2 ft 84,900 cfs

A Few Conclusions

- No one method can effectively sample the range of conditions and habitats in Reach F
- River flows may determine whether fish from the main stem are likely to enter back-water habitats
- The tidal floodplain is primarily accessible during peak spring floods
- The timing of seasonally high flows relative to stock migrations may determine which stocks/life history types can access back-water habitats
- Non-native species are more prevalent in backwater than in main-stem areas of the upper estuary but their interactions with salmon are not well known